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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/540,202

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Kare Aflekt

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EXAMINER

BELL, CHARLES NEWTON

ART UNIT

PAPER NUMBER

4116

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/540,202	Applicant(s) AFLEKT ET AL.	
	Examiner CHARLES BELL	Art Unit 4116	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/21/2005</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In response to the Preliminary Amendment filed June 21, 2005, claims 1-8 have been cancelled and the newly added claims 9-16 are pending.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 10-13, 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites the limitation "the heat source" in sentence 1. There is insufficient antecedent basis for this limitation in the claim. For the purpose of examination, it will be assumed that the "heat source" is the "heat rejector", (paragraph [0012], sentence 3).

The term "will be" in claims 10 and 11 is indefinite and examiner suggests that the term be replaced by "is." For the purpose of examination, it will be assumed that the replacement has been made.

Claims 12 and 13 recite the limitation "the split stream" in sentence 1. There is insufficient antecedent basis for this limitation in the claims. For the purpose of examination, it will be assumed that the "split stream" is the "split flow", (paragraph [0012], sentence 3).

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Claims 15 and 16 recite the limitation "the counterflow heat exchanger" in sentence 1. There is insufficient antecedent basis for this limitation in the claim. For the purpose of examination, it will be assumed that the "the counterflow heat exchanger" is the "the counterflow heat exchanger", (paragraph [0012], sentence 3).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 9-11, 15 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Furuya et al. (U. S. Pat No. 6,260,367 B1).

In regard to claims 9-11, Fig. 1 of Furuya et al. discloses a compression refrigeration system including a compressor (2), a heat rejector (3), an expansion means (5) and a heat absorber (6, and see col. 4, ln. 16-21) connected in a closed circulation circuit that may operate with supercritical high-side pressure (see col. 4, ln. 42 and 43) wherein the system heat pump efficiency can be improved by controlling the compressor suction gas superheat and that carbon dioxide (see col. 4, ln. 40) is applied as the refrigerant in the system (as per claim 9); wherein the superheat will be increased when the temperature of the heat source (3, and see col. 4, ln. 17) is above a predetermined level (as per claim 10); wherein the limitation for the superheat will be compressor (2, and see col. 4, ln. 16) discharge temperature, (as per claim 11).

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In regard to claims 15 and 16, Fig. 1 of Furuya et al. discloses a compression refrigeration system wherein the counterflow heat exchanger (4) is used to heat the compressor (2) suction gas; wherein the counterflow heat exchanger (4) may be a separate unit (see col.4, ln.16-20).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not

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commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Furuya et al. (U. S. Pat No. 6,260,367 B1) in view of Burk et al. (U. S. Pub. No. 2001/0052228 A1).

In regard to claims 12 and 13, it is noted that Furuya et al. does not specifically disclose the system wherein the split stream from the heat rejector is used for compressor suction gas superheating; wherein the split stream from the high pressure side is expanded directly down to heat absorber pressure after suction gas heating. However, Fig. 2 of Burk et al. teaches a split stream (5 and 5a) from the heat rejector (3) is used for compressor (1) suction gas superheating, (see paragraph [0026] sentences 1, 4 and 6), (as per claim 12); Fig. 2 of Burk et al. also teaches a split stream (5 and 5a) from the high pressure side is expanded (7, and see paragraph [0026] sentence 2) directly down to heat absorber pressure after suction gas heating (as per claim 13). Hence, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the compression refrigeration system of Furuya et al. with the split stream of Burk et al. resulting in a refrigeration system capable of super heating the compressor suction gas.

In regard to claim 14, Furuya et al. further discloses the system wherein the split stream flow may be regulated (9 and 10, and see col. 4 ln. 57 and 58, and ln. 66 and 67) in order to control suction gas superheat.

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Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHARLES BELL whose telephone number is (571)270-5538. The examiner can normally be reached on 7:00AM - 4:30PM EST Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joe Cheng can be reached on (571)272-4433. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. B./
Examiner, Art Unit 4116
7/19/08

/Joe H Cheng/
Supervisory Patent Examiner
Art Unit 4116